

Infection Control, Bloodborne Pathogens and Hazardous Materials

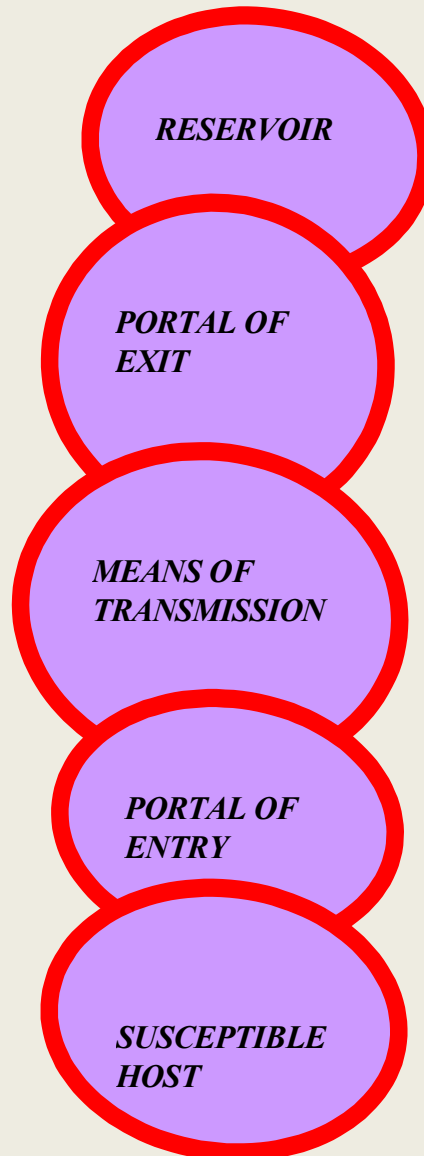
Self-study Slides
for College of Nursing Majors

Infection Control and Bloodborne Pathogens

- **Bloodborne Pathogens are microorganisms in the blood or other body fluids that can cause illness and disease in people.**
- **Bloodborne pathogens can be transmitted through contact with infected blood and body fluids.**

Disease or illness is caused when infectious blood or Other Potentially Infected Material (OPIM) is introduced into the bloodstream of a person.

Chain of Transmission



Bloodborne pathogens may be found in human blood and in other potentially infectious materials (OPIM) including the following body fluids:

- **Blood products (such as plasma or serum)**
- **Any body fluid visibly contaminated with blood**
- **Semen**
- **Vaginal secretions**
- **Cerebrospinal fluid**

OPIM (continued)

- **Synovial fluid**
- **Pleural fluid**
- **Peritoneal fluid**
- **Amniotic fluid**

What are 3 primary routes of transmission of microorganisms into a person's bloodstream?

- Needlesticks
- Contact with mucous membranes, e.g., eyes, nose, mouth
- Break in the skin

REMEMBER:

A break in the skin does not have to be large, it simply needs to be fresh in order to be a potential pathway for infection.

What are some bloodborne pathogens that you could be exposed to during your work in the healthcare field?

- HIV – Human Immunodeficiency Virus
- HBV – Hepatitis B Virus
- HCV – Hepatitis C Virus

Universal or Standard Precautions is an approach to infection control.

According to the concept of Universal Precautions, all human blood and certain body fluids from all clients/patients are treated as if they are known to be infectious for HIV, HBV, HCV and other bloodborne pathogens.

Exposure Control Plan

Hospitals, clinics, and other places where nursing students may have academic experiences are required by OSHA (Occupational Health and Safety Administration) to have a written Exposure Control Plan. Your instructor or preceptor can tell you the location of this plan.

If you work in a health care facility, you must know where the plan is located.

Needlesticks

- The most common form of accidental exposure to bloodborne diseases
- 600,000 – 800,000 reported needlesticks each year

Preventing Needlesticks

- Do not recap a needle after use.
- Do not bend or otherwise manipulate a needle after use.
- Do not remove used needles from syringes.

Discarding Used Needles and Other Sharps

- Discard used needles, glass slides, scalpels, capillary tubes, disposable razors, etc. in a sharps or biohazard container.
- Do not overfill the container or push used sharps into a filled container.
- The container should be near where needles, etc may be found.
- The container must be puncture proof, leakproof and closable.
- The container must be red or labeled with a biohazard symbol.

Preventing Needlesticks

- Use safety needle devices and needleless devices.
- Use needleless connector systems for IVs.
- Employers must select safer needle devices with user input and review their selections each year.

What Actions Do You Take if You are Exposed to Blood or Other Potentially Infectious Material?

- Flush the site and cleanse with soap and water
- Flush mucous membrane exposed sites with water or saline
- Report the incident immediately to your clinical instructor or your clinical preceptor. Never wait more than 48 hours.

Monitoring an Exposure

- Immediate post-exposure follow-up and baseline testing will be done at the site where the needlestick or other exposure occurred.
- Other follow-up for nursing students is provided by their own healthcare provider or through the Student Health Clinic. Expenses for this follow-up are the responsibility of the student.
- For high-risk exposures, medications may be recommended to lessen the likelihood of infection.

Decontamination

Disinfection



US Environmental Protection Agency

Antimicrobial pesticides are substances or mixtures of substances used to destroy or suppress the growth of harmful microorganisms whether bacteria, viruses, or fungi on inanimate objects and surfaces.

Antiseptics and Germicides: Used to prevent infection and decay by inhibiting the growth of microorganisms. Because these products are used in or on living humans or animals, they are considered drugs and are thus approved and regulated by the Food and Drug Administration (FDA).

Sanitizers: Used to reduce, but not necessarily eliminate, microorganisms from the inanimate environment to levels considered safe as determined by public health codes or regulations.

Disinfectants: Used on hard inanimate surfaces and objects to destroy or irreversibly inactivate infectious fungi and bacteria but not necessarily their spores.

Sterilizers (Sporicides): Used to destroy or eliminate all forms of microbial life including fungi, viruses, and all forms of bacteria and their spores.



US Environmental Protection Agency

More than 5000 antimicrobial products are currently registered with the U.S. Environmental Protection Agency (EPA) and sold in the marketplace.

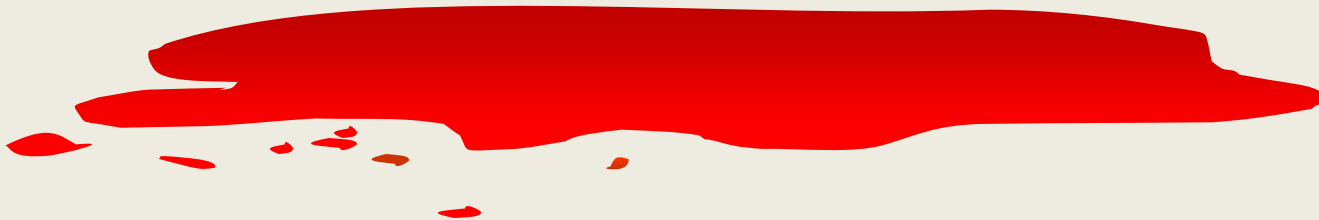
EPA Registered Pesticides

<http://www.epa.gov/oppad001/chemregindex.htm>

Bleach Disinfection Solution

A fresh solution of 1/4 cup liquid chlorine bleach in one gallon of cool tap water (or 1 tablespoon of bleach to 1 quart of water) is an effective disinfectant on surfaces.

Sun, evaporation and heat weaken the solution, so keep the solution covered, out the sun and away from heat sources.



Regulated Waste

- Potentially contaminated material is disposed of in specially marked containers.
- These containers may be fluorescent orange or orange-red.
- These containers are marked with a red or orange biohazard label (see the next slide)

Regulated Waste



BIOHAZARD

Cleaning up Broken Glass and Sharps

- **Never pick up by hand**
- **Use tongs or brush/pan**
- **Wear your gloves**
- **Dispose of materials in a sharps box**

Personal Protective Equipment (PPE)

- The employer at your clinical sites makes the determination of need for PPE based on the job classification and tasks.
- The employer must provide the PPE.
- As a student in the clinical site, you must use PPE that the employer has determined to be necessary for the tasks you are performing.

PPE - Gloves

- Wear gloves when hands are likely to be in contact with blood or body fluids.
- Wash hands after contact with blood or body fluids even if gloves were worn.
- Wash hands before and after all work with patients.
- Do not wash gloves and continue to use them if they have become contaminated.

If you have latex allergy, consult your healthcare provider regarding the following precautions:

- Avoid contact with latex gloves and products.
- Avoid areas where you might inhale the powder from latex gloves worn by other workers.
- Tell your clinical instructor and health care providers where you have clinical experience that you have latex allergy.
- Wear a medical alert bracelet.

PPE – Gowns and Masks

- Wear a fluid-resistant gown when clothing is likely to be soiled with blood or body fluid.
- Replace masks as soon as possible when they become wet.

PPE – Face Shield

- Wear a face shield or other protective eyewear when eyes or mucous membranes are at risk for being splashed or sprayed with blood or body fluid.

Other Helpful Tidbits

- Do not have food and drinks in the area where potentially contaminated or hazardous waste is located.
- If you are unsure about disposal of any materials, e.g., laundry, ask your clinical teacher or clinical preceptor.
- Isolation techniques and other material on prevention of infection will be presented in classroom and clinical sessions in the nursing program.

Other Helpful Tidbits

- Students who have open lesions or any transmissible infection should not care for patients. Contact your clinical instructor if you have questions.

Hazardous Materials

Labeling

All containers of hazardous chemicals must be labeled with the name of the chemical, any hazard warnings associated with the product, and the name and address of the manufacturer.

Material Safety Data Sheets

- MSDSs are prepared by the chemical manufacturer or distributor to provide information about the chemical, the manufacturer, toxicity, flammability, physical and health hazards, exposure limits, precautions and controls, emergency and first aid treatment for exposures, and other information.
- MSDSs must be accessible 24 hours a day.

Examples of Hazardous Materials in the Clinical Area

- Infectious waste
- Flammable liquids and gases
- Toxic chemicals
- Radioactive materials
- Cancer causing chemicals and drugs
- Compressed gas cylinders

The OSHA Hazard Communication Standard

- Places that use hazardous materials must provide their employees with information and training on the proper handling and use of these materials.
- Employees have a Right to Know about the hazardous materials used in their work area and the potential effects of these materials on their health and safety.

SUMMARY

- **Treat all blood and OPIM as though they are infected.**
- **Seek medical attention immediately if an exposure to bodily fluids occurs.**

SUMMARY

- **Follow up on medical care as instructed by medical staff to reduce chances of infection.**
- **Get your HBV vaccination or show proof of positive titers (a College of Nursing requirement for clinical experiences).**

SUMMARY

- **Use PPE wisely.**
- **Ask for assistance if you are not sure about recommended or required practices.**

Information Sources

www.osha.gov

www.cdc.gov